

Thesis Title Structure of Pars Distalis of *Rana tigerina* and Its
Changes During Development and Seasonal Variation
Name Duangrudee Cherdwongcharoensuk
Degree Master of Science (Anatomy)

Thesis Supervisory Committee

Prasert Sobhon, Ph.D.
Prapee Sretarugsa, Ph.D.
Jittipan Chavadej, Ph.D.
Chaitip Wanichanon, Ph.D.

Date of Graduation 10 April B.E 2538 (1995)

ABSTRACT

Structure of pars distalis of *Rana tigerina* and its change during development and seasonal variation were investigated by Mallory Trichrome (MT) staining and immunohistochemical methods using specific monoclonal antibodies including, andtifrog-GH, -PRL, -ACTH or - β LH -or - β FSH and antihuman- β TSH, and Avidin-Biotin technique. Based on MT technique, cells in pars distalis could be divided into three groups: namely the reddish acidophils which were stained with acid fuchsin; and the bluish basophils which were stained with aniline blue. The last group are chromophobes which have very little cytoplasm and were unstained. During 1 to 6 months of development the number of acidophils were dominant, while during 7 to 14 months basophils were increased markedly.

The changes of pars distalis of fully mature frogs during seasonal variation could be divided into 4 periods, which match the reproductive behaviour of frogs, the ovarian changes, and the spawning : these periods are the early- breeding period (February- March), the mid- breeding period (April - September), the post - breeding (October - November) and the non - breeding period (December - January). It was found that during all periods, acidophils were scattered throughout the gland, but a high number were concentrated in the postero - dorsal region ; whereas basophils were also distributed throughout the gland, but with a high concentration in the central and postero-dorsal region. In contrast, chromophobes were concentrated at the anterior region. Basophils were dominant in the mid - breeding season while acidophils were more or less constant throughout all seasons. During all periods, the immunoreactive GH cells were concentrated in the

postero- dorsal region of pars distalis, whereas the immunoreactive PRL cells were evenly distributed throughout the gland. The moderately - stained immunoreactive LH and FSH cells (group I) were concentrated close together into cluster in the central and postero - dorsal region of pars distalis, while the intensely stained immunoreactive group II cells were scattered in the peripheral and ventral regions of the gland during early-, mid- and post- breeding periods. On the other hand, in the non-breeding season, immunoreactive LH and FSH cells were distributed throughout the gland. The immunoreactive ACTH cells were uniformly distributed in the antero-ventral region of pars distalis, while immunoreactive TSH cells were mostly distributed at the ventral region of the gland. All immunoreactive cells were large and showed more intensity of immunostaining in the mid - breeding season than those in other seasons. Relatively, the numbers of cells from the most to least numerous during all seasons were PRL, GH, FSH and LH, ACTH and TSH cells.